JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

GGSIPU physics 2005

1. A setting sun appears to be an altitude higher than it really is.This because of :

(a) absorption of light

(b) reflection of light

(c) refraction of light

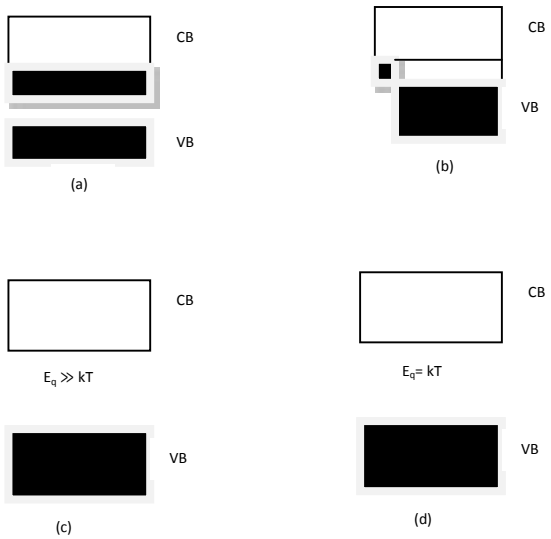
(d) disparison of light

2. In a young's double lit experiment,the slit separation is 1 mm and the screen is 1 m from the slit.For a monochromatic light of wavelength 500 nm,the distance of 3rd minima from the central maxima is :

(a) 0.50 mm (b) 1.25 mm

(c) 1.50 mm (d) 1.75 mm

3. Which of the energy band diagrams shown in the figure corresponds to that of semiconductor ?



4. The saturation current in the diode valve is governed by :

(a) Child's law (b) Len,s law

(c) Richardson's law (d) Ampere's law

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

5. Let i_e,i_c and i_b represent emitter current , collector current and the base current of a transistor,then :

(a) $i_c > i_e$ (b) $i_b > i_c$

(d) $i_b > i_c$ (d) $i_e > i_c$

6. A radioactive substance has an average life of 5 hours.In a time of 5 hours :

(a) half of the active nuclei decay

(b) less than half of the active nuclei decay

(c) more than half of the active nuclei decay

(d) all active nuclei decay

7. Light energy emitted by stars is due to :

(a) breaking of the nuclei

(b) joining of nuclei

(c) burning of nuclei

(d) reflection of solar light

8. The atomic number and the mass number of an atom remains unchanged when it emits :

(a) a photon (b) a neutron

(c) -particle (d) an ~-particle

9. According to the special theory of relativity,which of the following has same value in all inertia frames ?

(a) Mass of an object

(b) Length of an object

(c) Velocity of the sound

(d) Velocity of the light

10. For a triode :

(a) «=r_p x g_m (b) g_m=« x r_p

(c) r_p=« x g_m (d) «=r_p/(r_p + g_m)

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

11. A small object placed on a rotating horizontal turn table just slips when it is placed at a distance of 4 cm from the axis of rotation,If the angular velocity of the turn table is doubled the object slips when its distance from the axis of rotation is :

(a) 1 cm (b) 2 cm

(c) 4 cm (d) 8 cm

12. When two paralTlel wires carry currents in the same direction :

(a) they attract each other

(b) they repeal each other

(c) magnetic forces on two wire are perpendicular to each other

(d) they do not experience any magnetic force

13. The efficiency of carnot engine is 0.6. It rejects 20 J of heat to sink.The work done by the engine is :

(a) 20 J (b) 30 J

(c) 33.3 J (d) 50 J

14. The dimension of K in the equation $W=\frac{1}{2}Kx^2$ is :

(a) $[M^1L^0T^{-2}]$ (b) $[M^0L^0T^{-1]}$

(c) $[M^1L^1T^{-2}]$ (d) $[M^1L^0T^{-1}]$

15. When $\vec{A}.\vec{B} = -{}^0A{}^0.{}^0B{}^0$, then :

(a) then $\vec{A}$ and $\vec{B}$ are perpendiqular to each other

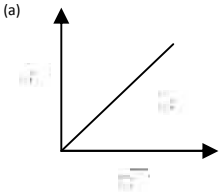
(b) $\vec{A}$ and $\vec{B}$ act in the same direction

(c) $\vec{A}$ and $\vec{B}$ act in the opposite direction

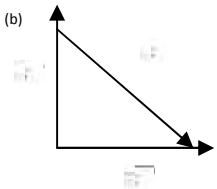
(d) $\vec{A}$ and $\vec{B}$ can act in any direction

16. Which of the four arrangements in the figure correctly shows the vector addition of two forces F_1 and F_2 to yield the force F_3 ?

(a)



(b)



JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

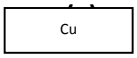
JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

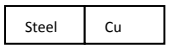
17. Two bullets are fired simultaneously,horizontally and with different speeds from the same place.which bullet will hit the ground first?

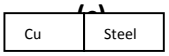
(a) The faster one (b) Depends on their mass

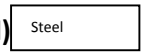
(c) The slower one (d) Both will reach simultaneously

18. Heat current is maximum in which of the following (rods are of identical dimension) ?

(a) 

(b) 

(c) 

(d) 

19. A plumb line is suspended from a ceiling of a car moving with horizontal acceleration of a.What will be the angle of inclination wit vertical ?

(a) $\tan^{-1}\left(\frac{a}{g}\right)$ (b) $\tan^{-1}\left(\frac{g}{a}\right)$

(c) $\cos^{-1}\left(\frac{a}{g}\right)$ (d) $\cos^{-1}\left(\frac{g}{a}\right)$

20. A body of mass 2 kg is kept by pressing to a vertical wall by a force of 100 N.The friction between wall and body is 0.3.Then the frictional force is equal to :

(a) $\frac{5}{7}$g sin $^{-}$ (b) $\frac{3}{5}$g sin $^{-}$

(c) $\frac{2}{7}$g sin $^{-}$ (d) $\frac{2}{5}$g sin $^{-}$

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

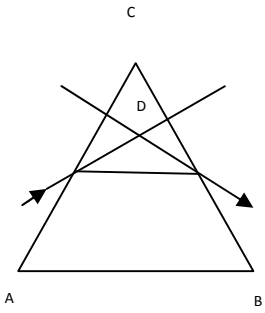
JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

21. In a bicycle the radius of rear wheel is twice the radius of front wheel.If r_f and r_r arethe redius,v_f and v_r are the speeds of top most points of wheel,then :

(a) v_r=2vf (b) $v_f = 2v_r$

(c) $v_f = v_r$ (d) $v_f > v_r$

22. In the given figure,what is the angle of prism ?



(a) A (b) B

(c) C (d) D

24. Moment of inertia of an object does not depend upon :

(a) mass of object (b) mass distribution

(c) angular velocity (d) axis of rotation

25. A particle falls towards earth from infinity.Its velocity on reaching the earth would be :

(a) infinity (b) $\sqrt{2gR}$

(c) $2\sqrt{gR}$ (d) zero

26. Universal gas constant is :

(a) C_p/C_v (b) C_p-C_v

(c) C_p+C_v (d) C_v/C_p

27. Two bodies of mass m and 4m have equal kinetic energy .What is the ratio of their momentum ?

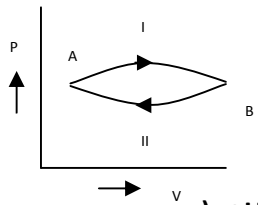
(a) 1:4 (b) 1:2

(c) 1:1 (d) 2:1

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

28. A gas at state A changes to state B through path I and II shown in the figure.The change in internal energy is aU_1 and aU_2 respecitvely.Then :



(a) $aU_1 > aU_2$ (b) $aU_1 < aU_2$

(c) $aU_1 = aU_2$ (d) $aU_1 = aU_2 = 0$

29. According to kepler's law the time period of a satellite varies with its radius are as :

(a) T^2 ó R^3 (b) T^3 ó R^2

(c) R^2 ó $(1/R^3)$ (d) T^3 ó $(1/R^2)$

30. A particle is moving in a circle with uniformed speed v.In a moving from a point to another diametrically opposite point:

(a) the momentum changes by mv

(b) the momentum changes by 2mv

(c) the kinetic energy changes by $(1/2)mv^2$

(d) the kinetic energy changes by mv^2

31. n small metal drops of same size are charged to V volt each.If they coalesce to from a single large drop,then its potential will be :

(a) V/n (b) Vn (c) $Vn^{1/3}$ (d) $Vn^{2/3}$

32. In an adiabatic process,the state of a gas is changed fromP_1,V_1,T_1 to P_2,V_2,T_2. Which of the following relation is correct ?

(a) $T_1V_1^{y-1} = T_2V_2^{y-1}$

(b) $P_1V_1^{y-1} = P_2V_2^{y-1}$

(c) $T_1P_1^{y} = T_2P_2^{y}$

(d) $T_1V_1^{y} = T_2V_2^{y}$

33. Minimum and maximum values of possion's ratio for a metal lies between :

(a) - ã to + ã (b) 0 to 1

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

(c) - ã to 1 (d) 0 to 0.5

34. A wire of diameter 1 mm breaks under a tension of 1000 N.Another wire,of same material as that of the first one,but of diameter 2mm breaks under a tension of :

(a) 500 N (b) 100 N

(c) 1000 N (d) 4000 N

35. In a capability tube experiment,a vertical,30 cm long capillary tube is dipped in water.The water rises upto a hight of 10 cm due to capillary action.If this experiment is conducted in a freely falling elevator,the length of the water column becomes :

(a) 10 cm (b) 20 cm

(c) 30 cm (d) zero

36. An aeroplane gets its upward lift due to a phenomenon described by the :

(a) Archimedes principle

(b) Bernoulli's principle

(c) buoyancy principle

(d) Pascal law

37. A wooden block is taken to the buttom of a deep,calm lake up water and then released.It rises up with a :

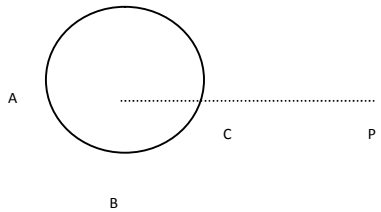
(a) constant acceleration

(b) decreasing acelaration

(c) constant velocity

(d) decreasing velocity

38. A hollow conducting sphere is placed an electric field produced by a point charge placed at P as shown in figure.Let V_A,V_B,V_C be the potentials at points A,B and C respectively.Then :



JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

(a) $V_C > V_B$ (b) $V_B > V_C$

(c) $V_A > V_B$ (d) $V_A = V_C$

39. A parallel plate air capacitor is charged and then isolated.When a dialectric material is inserted between the plates of the capacitor,then which of the following does not charge ?

(a) Electric field between the plates

(b) Potential difference across the plates

(c) Charge on the plates

(d) energy stored in the capacitor

40. A spherical drop of mercury having a potential of 2.5 V is obtained as a result of merging 125 droplets .The potential of a constituent droplets would be :

(a) 1.0 V (b) 0.5 V

(c) 0.2 V (d) 0.1 V

41. A 10 micro farad capacitor is charged to 500 V and then its plates are joined together,through a resistance of 10 ohm.The heat produced in the resistance is :

(a) 500 J (b) 250 J

(c) 125 J (d) 1.25 J

42. A point charge is kept at the centre of a metallic insulted spherical shell.Then :

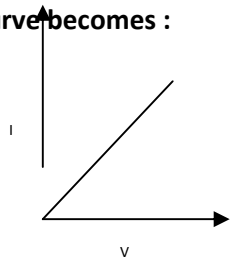
(a) electric field outside the sphere is zero

(b) electrical field inside the sphere is zero

(c) net induced charge on the spere is zero

(d) electrical potential inside the sphere is zero

43. I-V characteristic of a copper wire of length L and area of cross-section A is shown in the figure.The slove of the curve becomes :



JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

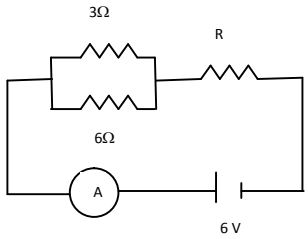
(a) More if the experiment is performed at higher temperature
(b) More if a wire of steel of same dimension is used
(c) More if the length of the wire is increased
(d) Less if the length of the wire increased

44. The current in a conductor varies with time t as $I=2t+3t^2$,where I is an ampere and t in seconds.Electric charge flowing through a section of the conductor during t=2 sec to t=3 sec is :

(a) 10 C (b) 24 C

(c) 33 C (d) 44 C

45. If the ammeter in the given circuit reads 2 A,the resistance R is :



(a) 1 t (b) 2 t

(c) 3 t (d) 4 t

46. The magnetic field near a current carrying conductor is given by :

(a) Coulomb's law

(b) Lenz's law

(c) Biot-Savart's law

(d) Kirchhoff's law

47. Susceptibility of a diamagnetic substance is :

(a) zero (b) negative

(c) less than 1 (d) greater than 1

48. A 50 ohm galvanometer gets full scale deflection when a current of 0.01 A pass through the coil.When it is converted to a 10 ammeter,the shunt resistance is :

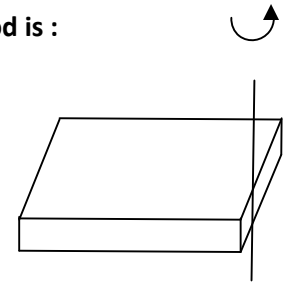
(a) 0.01 t (b) 0.05 t

(c) 2000 t (d) 5000 t

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

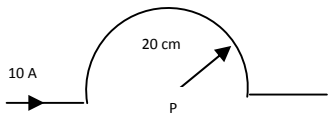
49. A horizontal rod of length L rotates about a vertical axis with a uniform angular velocity μ.A uniform magnetic field B exists parallel to the axis of rotation.Then potential difference between the to ends of the rod is :



(a) $\mu L^2 B$ (b) $\mu^2 LB$

(c) $\frac{1}{2}\mu L^2 B$ (d) $\frac{1}{2}\mu^2 LB$

50. A current of passing 10 A is passing through a long wire which has semicircular loop of the redius 20 cm as shown in the figure.Magnetic field produced at the centre of the loop is :



(a) 10 ® «T (b) 5® «T

(c) 4® «T (d) 2® «T

51. An a.c source is rated at 220 V,50 H_z.The time taken to voltage to charge from its pick value to zero is :

(a) 50 sec (b) 0.02 sec

(c) 5 sec (d) $5x10^{-3}$ sec

52. An ideal transformer has 500 and 5000 turn in primary and secondary windings respectively.If the primary voltage is connected to a 6 V battery then the secondary voltage is :

(a) zero (b) 60 V

(c) 0.6 V (d) 6.0 V

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

53. Resistance in the two gaps of a meter bridge are 10 ohm and 30 ohm respectively.If the resistances are inter changed the balance point shifts be :

(a) 33.3 cm (b) 66.67 cm

(c) 25 cm (d) 50 cm

54. When a plane electromagnetic wave enters a glass slab,then which of the following will not change ?

(a) Wavelength (b) Frequency

(c) Speed (d) Amplitude

55. A source emits a sound of frequency of 400 H_z,but the listener hears its to be 390 H_z.Then :

(a) the listener is moving towards the source

(b) the source is moving towards the listener

(c) the listener is moving away from the source

(d) the listener has a defective ear

56. A particle executing simple harmonic motion along y-axis has its motion described by the equation y=Asin (μt) + B.The amplitude of the simple garmonic motion is :

(a) A (b) B

(c) A+B (d) $\sqrt{A+B}$

57. An open pipe resonates with a turning fork of frequency 500 H_z.it is observed that two successive nodes are formed at distances 16 and 46 cm from the open end.The speed of the sound in air in the pipe is :

(a) 230 m/s (b) 300 m/s

(c) 320 m/s (d) 360 m/s

58. It takes 2.0 seconds for a sound wave to travel between to fixed points when the day temperature is 10^0 C.If the temperature rises to 30^0 C the sound wave travels between the same fixed parts in :

(a) 1.9 sec (b) 2.0 sec

(c) 2.1 sec (d) 2.2 sec

59. Two plane mirrors are inclined to each other at an angle of 60^0.A point object is placed in between them.The total number of images produced by both the mirrors is :

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL

JbigDeaL JbigDeaL JbigDeaL JbigDeaL
Download from www.JbigDeaL.in Powered By © JbigDeaL™

(a) 2 (b) 4

(c) 5 (d) 6

60. For a real object,which of the following can produced a real image ?

(a) plane mirror (b) Concave lens

(c) Convex mirror (d) concave mirror

JbigDeaL JbigDeaL JbigDeaL JbigDeaL Download from www.JbigDeaL.in Powered By © JbigDeaL JbigDeaL JbigDeaL JbigDeaL JbigDeaL